

REMARKS

This paper is filed in response to the office action mailed on December 30, 2004. Restricted claims 1-8 and 19-21 have been canceled; claims 9 and 11-12 have been amended; claims 22-31 have been added. A total of 2 independent claims and 18 dependent claims are now pending for a total of 20 claims and therefore no fees for excess claims are due.

In the office action, the drawings are objected to and, in response, Fig. 4A has been amended to schematically show a fuel injection pump 29. The lead port 27 has also been clarified in Fig. 4A. Fig. 4C is also amended to provide a reference numeral 28c for the closed end recited in amended claim 9 and original claim 12. Replacement sheets 2 and 3 for Figs. 4A and 4C are enclosed. An early action indicating the acceptance of all drawings is respectfully requested.

The restriction requirement has been made final and therefore claims 1-8 and 19-21 have been canceled.

Turning to the rejections based upon the prior art, the office action rejects claims 9-14 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,085,619 ("Torii") in view of U.S. Patent No. 5,687,612 ("Imamura"). In response, claim 9 has been amended and applicants present the following remarks.

Applicants respectfully submit that no combination of Imamura and Torii presents a *prima facie* case of obviousness. Specifically, under MPEP §§ 2142 and 2143,

[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

Citing, In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); *see also* MPEP § 2143-§ 2143.03 for decisions pertinent to each of these criteria.

The base reference, Torii, is directed toward a tensioning device for a robot. Torii is a low torque application that is controlled by a servo motor which can impart rotation to the structure in either direction. The servo motor 34 of Torii is connected to the pinion 28 which serves as the drive shaft which is enmeshed with the driven gear 26 which, in turn, is enmeshed with the pinion 30. Pulleys 30a, 28a are connected to their respective pinions 30, 28 and a belt 32 is wrapped around the pulleys 30a, 28a.

Torii is not directed toward a dampened gear train and, to overcome the disadvantages associated with the use of pinions 30, 28 as opposed to gears, Torii relies upon the tensioning device provided by the pulleys 30a, 28a, an endless belt 32 and tensioner 36. Specifically, the tensioning device prevents backlash when the rotation is reversed. See Torii at column 5, lines 20-21. Thus, Torii is directed toward a low torque application, and does not disclose a tensioning device for a gear train.

In contrast, claim 9 recites a dampened gear train with a damper mechanism. The gear train includes output gear enmeshed with a first idler gear which, in turn, is enmeshed with a second idler gear. The output gear and the second idler gear connected to respective pulleys by a splined shaft connection recited in independent claim 9. An endless belt is wrapped around the pulleys and, when tension is applied to the belt, the mesh torque experienced at the output gear is reduced as shown in Fig. 5 and discussed in the specification.

Torii does not teach or suggest two idler gears, an idler gear disposed between and enmeshed with an idler gear and an output gear or a pulleys mounted on an output gear and an idler gear as recited in independent claim 9. The Torii pinion 28 is a drive shaft, not an idler gear. The Torii pinion 30 is not an output gear. The Torii driven gear 26 is not an idler gear. Torii also does not teach or suggest spline connections between pulleys in an idler gear or an output gear as recited in claim 9.

In an attempt to supplement Torii with respect to the spline connection deficiency, the Patent Office relies upon Imamura. However, Imamura, in Fig. 5, discloses a spline connection between a motor shaft 14 and an input shaft 33. Lubrication to the spline connection is provided by lubricant that flows through the axial center of the input shaft 33. In contrast, claim 9 has been amended to clarify that the splined cam and idler pulley shafts are solid and the lubricant fitting is attached to the output and idler shafts which is clearly different than the structure taught by Imamura.

Further, Imamura in no way teaches or suggest a spline connection between a pulley and a gear shaft. Imamura in no way teaches or suggests a spline connection between a pulley and an idler gear shaft or between a pulley and an output gear shaft. Accordingly, Imamura cannot supplement the deficiencies of Torii with respect to Torii's failure to teach or suggest any gear train, or a spline connection between a pulley and an idler gear shaft or between a pulley and an output gear shaft.

Therefore, applicants respectfully submit that independent claim 9 is not obvious in view of any hypothetical combination of Torii and Imamura because no combination of these two references teaches all of the claim elements of claim 9 and the disparate designs of Torii and Imamura teach away from the design of claim 9. Torii is not directed a gear train. The pinions 30, 28 of Torii are not equivalent to the output gear and second idler gear of claim 9. The driven gear 26 is not equivalent to the first idler gear of independent claim 9. The tensioning device 36 of Torii is not intended to reduce the mesh torque experienced at the pinion 30 but, instead, is utilized to prevent backlash when the direction of the servo motor 34 is reversed. Imamura is not directed toward a gear train but is simply directed toward a spline connection between two shafts and the lubricant fitting of Imamura passes through the input shaft 33 and is therefore not connected to an output shaft as recited in amended claim 9 and further does not teach or suggest a bleed port disposed at the closed end of a splined female hole recited in dependent claims 11 and 12.

Further, neither Imamura nor Torii teach or suggest the combination and modifications to Torii proposed by the Patent Office. While Torii does not disclose a spline connection between a shaft connected to a pulley and a gear shaft, Torii does not need any such connection because Torii utilizes pinions. To reconstruct Torii to generate a structure covered by claim 9 would require the conversion of the driven gear 26 to an idler gear, the conversion of the pinion 30 to an output gear and the conversion of the pinion 28 to an idler gear. Corresponding shafts would need to be introduced between the gears and the pulleys 30a, 28a and then the spline connection of Imamura could be employed. Such a drastic reconstruction of the Torii base reference cannot be performed without the use of impermissible hindsight. Simply put, there is no suggestion in either Torii or Imamura to make such a reconstruction of Torii.

Applicants respectfully submit that the reconstruction proposed by the Patent Office is being made using impermissible hindsight, that is, using independent claims 1 and 19 with a template. It is impermissible to reconstruct the claimed invention from the selected pieces of prior art, absent some suggestion, teaching or motivation in the prior art to do so. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 5 U.S.P.Q.2d 1434, 1438 (Fed. Cir. 1988); *CR Bard, Inc. v. M3 Sis., Inc.*, 48 U.S.P.Q.2d 1225, 1232 (Fed. Cir. 1998).

Therefore, applicants respectfully submit that the rejection of independent claim 9 and the dependent claims 10-12 as being obvious in view of the hypothetical combination of Torii and Imamura is improper and should be withdrawn.

Next, the Patent Office rejects claims 15-17 under 35 U.S.C. § 103 as being unpatentable over Torii in view of Imamura and further in view of U.S. Patent No. 5,569,106 ("Splittstoesser"). However, Splittstoesser is merely cited for the proposition that it discloses a cover or shield for a tensioning device. Splittstoesser in no way teaches or suggests the gear train and means for connecting a tensioning device to a gear train required by claim 9. Splittstoesser in no way teaches or suggests any way to reduce the mesh torque on an output gear as provided by independent claim 9. Thus, Splittstoesser cannot be used to supplement the deficiencies of Torii or Imamura as noted above and applicants respectfully submit that this rejection is improper as well.

Next, the office action rejects claims 9-12 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 4,236,448 ("Wieland") in view of Imamura. Applicants respectfully submit that this rejection also fails to establish a *prima facie* case of obviousness.

At the outset, the base reference, Wieland is directed toward a vibration dampening mechanism for a rotary printing press. Wieland in no way teaches or suggests any way to reduce mesh torque in a gear train. Wieland is directed toward vibration dampening, not mesh torque reduction. In any event, Wieland does disclose the gear train 2, 5 and 8 whereby the gears 2 and 8 are connected by an endless belt. However, the similarities between Wieland and claim 9 end there.

Specifically, Wieland in no way teaches or suggests any spline connection between and idler gear and a pulley or an output gear and a pulley. As shown in Fig. 2 of Wieland, there is simply no teaching or suggestion of any spline connection between the pulleys 19, 20 and the shafts 9, 3. Wieland merely teaches a wedged or secured connection between the pulley 19 and the shaft 3 and column 2, lines 64-65. There is no teaching or

suggestion of any lubricant fitting between the Wieland shafts that connect gears to drums or pulleys to gears.

In an attempt to supplement Wieland, the Patent Office again relies upon Imamura. However, Imamura merely discloses a spline connection between a motor shaft 14 and an input shaft 33. There is no lubricant fitting connected to the motor shaft 14, which has the splined female hole. Therefore, Imamura does not teach or suggest the splined connection and lubricant fittings recited in independent claim 9.

Further, Wieland is not directed toward a high torque application like the dampened gear train of independent claim 9. Instead, Wieland is directed toward a means for reducing vibration in a rotary printing press. While the torque may be substantial, the entire Wieland design is directed toward vibration dampening, not mesh torque reduction. Therefore, there is no motivation found in Wieland to alter its wedged or secured connection between the pulleys 19, 20 and their respective shafts 3, 9. In any event, there is simply no suggestion or motivation to provide any lubricant between the pulleys 19, 20 and shafts 3, 9.

In modifying Wieland, the Patent Office relies upon Imamura. However, Imamura is not directed toward any dampening mechanism at all but, instead, is directed toward a power transmitting apparatus whereby an input shaft 33 is connected to a motor shaft 14. The Patent Office does not explain how the spline connection of Imamura would be incorporated into Wieland or exactly where. Thus, not only would one not be motivated to modify the Wieland design with the teachings of Imamura, it is unclear how such a modification could be implemented.

Therefore, applicants respectfully submit that the hypothetical combination of Wieland and Imamura fails to meet the standards of MPEP §§ 2142 and 2143 because the hypothetical combination fails to teach or suggest all of the claim elements of independent claim 9, there is no motivation or suggestion in either Wieland or Imamura to make the proposed hypothetical combination and, because Wieland is directed toward a vibration dampening mechanism, there is absolutely no reasonable expectation of success in making the proposed hypothetical combination. Further, the proposed combination fails to teach or suggest every claim limitation due to the amendment of claim 9 which requires the mail splined shafts to be solid and the shafts with the female splined holes to be the shafts to which the lubricant fittings are connected.

Therefore, applicants respectfully submit that the rejection of claims 9-12 under 35 U.S.C. § 103 as being unpatentable over Wieland in view of Imamura is improper and should be withdrawn.

Next, the office action rejects claims 13-17 under 35 U.S.C. § 103 as being unpatentable over Wieland, Imamura and further in view of Splittstoesser. This rejection is traversed for the same reason that the rejection of claims 15-17 as being unpatentable in view of Torii, Imamura and Splittstoesser is traversed. Splittstoesser is merely cited for the proposition that it discloses a cover or shield for a tensioning device. Splittstoesser in no way teaches or suggests a gear train or any of the deficiencies of Wieland and Imamura as discussed above. Therefore, applicants respectfully submit that the rejection of claims 13-17 as being unpatentable over Wieland, Imamura and Splittstoesser is improper and should be withdrawn.

Finally, the office action rejects claim 18 under 35 U.S.C. § 103 as being unpatentable over Wieland, Imamura and U.S. Patent No. 4,373,483 ("Bury"). However, Bury is merely cited for the proposition that it discloses a fuel injection pump 19 driven by a gear. However, Bury does not teach or suggest the claim elements of independent claim 9 which are not taught or suggested by Wieland and Imamura. Bury does not teach or suggest the spline connection and the lubricant fitting of claim 9 that are not taught or suggested by Wieland and Imamura. Accordingly, Bury cannot be used to supplement Wieland and Imamura in order to establish a *prima facie* case of obviousness for independent claim 9. Therefore, applicants respectfully submit that the rejection of claim 18 based upon Wieland, Imamura and Bury is improper and should be withdrawn.

New claim 22 is clearly allowable over the cited prior art because none of the art references teach or suggest an input gear with a third idler gear disposed between and enmeshed with both the second idler gear and input gear as recited in claim 22. Wieland's input pinion 1 is not enmeshed with an idler gear disposed between the gear 2 and therefore Wieland does not teach or suggest the gear train of claim 22. The other base reference, Torii, merely teaches a drive pinion 28, a driven gear 26 and an additional pinion 30. Thus, neither base reference could be used to establish a *prima facie* case of obviousness with respect to new claim 22.

New claim 23 is allowable as none of the references of record teach or suggest a middle idler gear (*i.e.*, the first idler gear of claim 9) that has a smaller radius than both the output and second idler gears. Thus, claim 23 is clearly allowable.

New claim 24 is a combination of allowable claims 9 and 22 and is therefore also allowable. New claims 25-31 all depend from allowable claim 24 and therefore are also allowable.

An early action indicating the allowability of this application is respectfully requested.

The Commissioner is authorized to charge any fee deficiency required by this paper, or credit any overpayment, to Deposit Account No. 13-2855.

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Respectfully submitted,

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Attachments